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ADVERTISEMENT.

THE deformities of the chest, owing to their universality, are of vast public interest, and afford an extensive field for pathological investigation; for, by whatever cause the natural dimensions of that cavity become altered, whether from mechanical compression, the deformities which form the subject of this little work, disease of the spine, or other causes, the natural action of the organs contained

within it must be more or less deranged, and the health of the individual ultimately affected.

My present observations do not relate to those deformities of the chest which are consequent on affections of the lungs, or of the spinal column; but to those primary derangements, which are so deeply interesting, especially in early life, and by which the spine and the contents of the chest are secondarily affected. My object has been to treat the subject as simply and briefly as possible.

In a paper which was published some time ago in one of the Medical Journals, and which was afterwards printed in a separate form, I I described those deformities which form the subject of the following pages. The confirmation which my views had received from those practitioners who have attended to the

subject, as well as from my own subsequent experience, have induced me to lay my observations before the profession in their present form.

Frederick-Place, Old Jewry,
June, 1836.

DEFORMITIES OF THE CHEST.

THIS subject has always been one of great interest, and that interest has increased of late years owing to the prevalent modes of dress—the pressure of stays, busks, &c., by which some of these deformities are caused or increased. I shall notice, however, the earliest of these deformities first.

LATERAL AND ANTERIOR COMPRESSIONS.

In the first of the deformities which I am about to treat of, the sides of the chest are flattened, and the sternum or breast-bone is prominent; in the

second, the sternum is depressed or concave in front, and the sides of the chest more convex than natural.

I.

My attention was directed to the first of these deformities by the valuable paper of Baron Dupuytren*; since the publication of which, in March, 1825, I have met with many cases of the kind in my own practice.

In most cases, the subjects of this deformity are of a weak constitution; and sometimes, as Dupuytren observes, the offspring of lymphatic, scrofulous, or rachitic people, dwelling in low, damp, and cold places, ill clothed, and brought up on unsubstantial food.

The deformity is sometimes congenital. At others, however, it occurs during childhood, or later. Indeed,

* Répertoire d'Anatomie, tom. v. p. 198.

Dr. Copland * says that his experience leads him to state, that it generally comes on gradually after birth, owing to deficient inflation and development of the lungs, arising from the weakness of the muscles of inspiration, and the flexibility of the ribs at the time of birth; that in cases of this description the vital energy of the lungs is insufficient for their healthy actions, and the respiratory mechanism unable to accomplish their full expansion, or sustain the continued pressure of the atmosphere, before which the soft and imperfectly-formed thoracic parietes gradually yield; and that it has appeared to him very frequently to be greatly increased, if not altogether occasioned, subsequently to birth, by the very common practice, among nurses, of lifting the child by pressing the palms of the hand on the sides of the chest, immediately under the armpits. In these views, I am inclined to concur, though not disposed to lay great stress on the incidental cause mentioned in the conclusion.

* Dictionary of Practical Medicine, Part I. Art. Chest.

In this deformity, the sides of the chest are very much flattened, one side being sometimes more depressed than the other; the ribs occasionally appear even as if driven inward, or as if pressed from one side to the other; and, in some children, this compression exists to such an extent, that the two sides of the chest can be grasped with the fingers of one hand.

In consequence of this, the sternum projects in a carinated form, or like the breast of a pigeon, whence persons with this deformity are called pigeon-breasted. The sternum, however, is not always so prominent as it at first sight appears to be, the projection being formed by the sternal extremities of the ribs, and the sternum itself being either flat, or a little concave at its lower, and projecting at its upper, part.

There is always some alteration in the natural direction of the spinal column; either a lateral curvature, which I believe to be common, or a projection of the spine backwards.

The transverse diameter of the chest is of course

considerably lessened, whilst the antero-posterior and vertical ones are increased; so that the former loses a fourth, a third, and sometimes half of its extent, whilst the others receive a proportionate increase. See Figure 1, Plate I.

When it is considered how very unfavourable this contracted state of the chest is to the proper development and exercise of the organs contained within it, it is but natural to expect that their functions should be deranged. The extent of this derangement depends in a great degree on the extent of the deformity.

From the depression of the sides of the chest, the heart may be seen strongly pulsating against the ribs; the circulation is hurried; the breathing is quick, and often difficult, being generally performed through the mouth; the nostrils appear as if stopped up, and the tonsils are generally enlarged.

"It is a remarkable circumstance," says Dupuytren,

"that this vicious conformation is almost constantly attended by a considerable swelling of the tonsils—a swelling, the union of which with the depression of chest, depends upon a cause as yet unknown to us *." But there is surely nothing wonderful in this, that, when the organ of respiration is so severely affected, all the aërial passages, and the parts which lubricate them, should be correspondingly affected.

The enlargement of the tonsils in some of the cases which fell under Dupuytren's observation, was so great as to compel him to remove a portion of them. "It is easy," he says, "to conceive how much this swelling must increase the difficulty which patients find in breathing, in consequence of the lateral depression of the sides of the chest. In some individuals, this swelling has been so great, that I have been compelled to remove a portion of the glands, an operation which,

* "Une chose remarquable est, que ce vice de conformation est presque constamment accompagné d'un gonflement considérable des amygdales, gonflement dont la liaison avec la depression de la poitrine tient à une cause qui nous est encore inconnue."

though it does not put an end to the difficulty of breathing, has nevertheless constantly relieved the patient." In several of my own patients, the tonsils have been so much enlarged as to prevent me seeing any part of the back of the pharynx.

It is a consequence of the preceding conditions, that the voice is not strong, and that persons with this deformity cannot speak for any length of time continuously. It is another consequence of the same causes, that the breathing is very loud in sleep. Indeed a peculiar symptom in this deformity is the noise which children make during sleep. Respiration is then always performed with open mouth and great noise, in consequence of being embarrassed by the malformation of the chest, the swelling of the tonsils, and the diminished aperture of the nostrils.

The mother of one of the children with this deformity told me that the screams and noise of her child, when sleeping, were such as to disturb the whole family. Certain it is, that the children frequently

start up in bed, and have unpleasant dreams, which not improbably are relative to the state of the respiration.

Owing probably to the state of the fauces, hearing is slightly affected.

Dupuytren observes that catarrh is frequently a complication of this depression of the sides of the chest; and that, especially when the tonsils are swollen, it always constitutes a very serious complication. There is then indeed a triple cause of oppression; malformation of the sides of the chest, swelling of the tonsils, and catarrh.

But, he observes, that, of all the maladies that may accompany this malformation, there is none more dangerous than the hooping-cough. No disease, he says, ever presented to him a more painful spectacle than that of a wretched infant who had the parietes of the chest pressed in laterally, swollen tonsils, and violent hooping-cough. "At each crisis of the cough, he suffered such oppression that instant death

seemed to be threatened: he died indeed in one of the paroxysms."

In infants, who have this deformity, there is great difficulty in taking the breast, danger of suffocation if the nipple be retained long in the mouth, a necessity of quitting it in a few seconds with loud cries, and afterwards the voice is short, broken and abrupt.

The preceding symptoms, particularly difficulty of respiration and circulation, may extend so far as to prevent the development of the vital functions, and cause death in the first moments of existence. When they do not cause immediate death, they may produce it in a more advanced stage, by preventing suckling, or even by impeding nutrition, and opposing the development of strength. Even when they do not cause death either primitively or consecutively, they keep the children who suffer under them in a state of meagreness, weakness and incapacity of action, that deprives them of the greater portion of their faculties.

Agreeing with Dupuytren, Dr. Copland says, that in many cases which have come before him, rapid emaciation, great debility, defective assimilation and sanguifaction, an atrophied and flaccid state of the muscles, softening of the bones, frequently asthenic, or chronic bronchitis, and swelling of the glands, have followed the deformity, and terminated the life of the patient.

All observers agree that as the infant advances in age, the disorder of respiration and circulation is still more remarkable, particularly when the patient takes any exercise, goes up or down stairs, or attempts to speak with eargerness; and that the pulse then becomes quick, irregular, or intermittent, being accelerated upon the slightest cause, whether physical or mental, nearly in the same way as in persons affected with diseases of the heart.

The disorder in the movements of this organ, it is observed, and the irregularity of the pulse, which is alternately slow and rapid, might induce us to believe

it a disease of the heart, did not attentive observation of the phenomena prove that these disorders and irregularities are in relation with the movements of respiration only, and are a result of the constraint it labours under.

If no attempt be made to remedy the deformity at an age when the bones are in a pliant state, the patient, sooner or later, falls a sacrifice to some disease of the lungs, or heart, produced or excited by the constant functional derangement to which these organs have been subject.

I opened the body of a person in my neighbourhood, about twenty-four years of age, who was pigeon-breasted. He had from his early youth been subject to affections of the chest, and died at last from hæmoptysis. The lungs, on examination, were found extensively diseased.

M. Breschet*, who has examined the bodies of several persons with this deformity, has observed a delay in the development of the skeleton, the bones of the skull still separated at a period when they should have been united, the continuance of distinct epiphyses, swelling of the extremities of the long bones, various torsions of their substance, little consistence in their tissue, (so that in this respect they might be compared to bones softened by immersion for some time in weak nitric acid, and were sometimes cut more easily than broken,) that tissue of a deep, and, as it were, venous red, and dentition backward, the teeth of the first or second set being affected, the crown decayed, partly destroyed, and furrowed anteriorly. The voluntary muscles are described as being atrophied, soft, pale, and exhibiting a fish-like structure.

In regard to the vascular system, the substance of the heart is commonly observed to be pale and flaccid,

* Répertoire d'Anatomie, tom. v. p. 204.

the foramen ovale to be quite open in young infants, and but imperfectly closed in older children, the lungs externally to be depressed towards the spinal column, to present towards the point corresponding to the depression of the thorax an analogous depression, and to bear behind the impress of the ribs in such a manner as to be furrowed by these bones, while lines in relief correspond to the intercostal spaces; the same organ internally to be often studded with tubercles of various sizes, portions of it to be frequently inflamed or hepatised and, in some cases, attended with bronchitis, the bronchia to be more or less loaded with mucus, or muco-purulent matter.

Of the secreting organs, the mucous follicles of the intestinal canal are observed to be often tumefied, but rarely ulcerated, excepting when a chronic diarrhœa has attended the latter stages of the thoracic compression; and the mesenteric glands are occasionally observed to be much enlarged.

Thus there is a vicious condition of the whole vital

system. Is this a cause or a consequence of the malformation of the chest? The best treatment must remain undecided till the ultimate cause is determined. I shall defer speaking, however, of the treatment and causes until I have considered the next kind of deformity.

II.

Dr. Copland, after observing that the anterior depression of the chest has been much overlooked by authors, and doing me the honour to add that I had "lately noticed it in an instructive article on deformities of the chest," says "it is by no means uncommon both in young and grown up subjects, although not so frequent as the lateral depression." It certainly is not so often congenital as the former kind, but it does frequently occur in persons of a weak habit, who are narrow chested, and who stoop a good deal.

The pressure of the busks in stays, added to the general pressure, appears to be one of the causes of its occurrence.

The external appearances of the chest in this kind of deformity are directly the reverse of those which we have just been considering. The sternum is hollow or concave anteriorly, being pressed inwards, either at its middle, at its lower part, or along its whole extent; the sides of the chest are very prominent, and the ribs very much bent; the chest is broad, but depressed anteriorly; the shoulders are high; and the spine is either straight, or but little altered from its natural shape. See Figure 2, Plate I.

Internally, the lungs and heart are of course compressed anteriorly; their functions are correspondingly altered; and their structure ultimately suffers.

The constitutional symptoms which attend this kind

of deformity are not so severe as those which attend the other. The circulation is hurried; the breathing is generally short and quick, and the patient is generally subject to cough or chronic catarrh.

My friend and late colleague, Dr. Lambe, told me that a patient of his, in whom this depression or hollow state of the sternum existed, died of a pulmonary affection. The sinking in of the sternum in this case was the consequence of the affection of the lungs, or rather of the weakened state of the circulation, because for upwards of fifteen years he had been subject to these attacks, and the sinking in of the sternum had come on only during the last three years.

Although, then, the constitutional symptoms be not so severe in this deformity, still it is of the highest importance to attend to the removal of it, as its existence predisposes the patient to these pulmonary attacks.

III.

In my former paper * on this subject, I observed that the occurrence of both these deformities appeared to me to depend, in most cases, on a weak and languid state of the circulation; and the constitutions of those in whom they are met with, and the state of the osseous systems, as developed by dissection, strengthened this opinion.

I am now disposed, in some measure, to qualify this opinion. It is the good fortune of surgery to treat of obvious and indisputable facts; and it is less conformable to the philosophic spirit of that art to assign, as the cause of disease, a certain state of the circulation, or other functions, than that structural condition, or, as in this case, that palpable malformation, by which it would appear that such state of function must inevitably be produced. This view seems to be con-

* London Medical Gazette, vol. v.

firmed, in the present case, by the fact, that the removal of the deformity by exercise, &c. at once rectifies all functional derangement. It is, moreover, more reasonable to suppose that a great cause like this oppressing the centre and source of the circulating and respiratory systems, should produce an infinity of functional derangements, than that these (themselves uncaused or without assigned cause) should produce so great a deformity.

But whatever may be the ultimate cause of these deformities, both local and constitutional means are expedient in the treatment of them.

The constitutional remedies for both deformities are the same. We must order nutritious diet; regulate the digestive function; and perhaps employ, as Dr. Copland recommends, the artificial salt-water bath, with a very large proportion of salt, at a temperature suited to the peculiarities of the case (or preferably sea bathing),—in short, we must make use of all those means by which the system can be duly kept up.

I concur, however, with Dupuytren, in thinking that a strengthening regimen, and the use of tónics should be used with all the moderation required by the embarrassment of respiration and the disorder of the circulation, which might be increased, and even rendered dangerous, by a regimen and remedies of too tonic a nature, or given in too great a quantity.

Whatever mode of treatment be adopted, there can be no doubt that a pure air is requisite to its success. My trust, however, is in other than constitutional remedies.

All the practitioners who have considered the subject are agreed that, to these general remedies, we must join local ones.

"Of all those which I have used," says Dupuytren, "I have found none more efficacious than exercises adapted to strengthen the muscles which extend from

the arms and shoulders to the chest, and especially than frequent pressure upon the sternum from before backwards."

For the lateral depression of the chest and prominent sternum, I have indeed tried the plan recommended by Dupuytren with success. But knowing *the longer continuity that can be given to exercises, and the brief duration that can be given to pressure;* impressed also with *the very different efficacy of voluntary effort in well directed exercise,* compared with *the passive submission to pressure;* I infinitely prefer the former to the latter wherever it is possible.—But let me lay this method of pressure fairly before the reader.

"Pressure," says Dupuytren, preliminarily, "if exercised on the chest from before backward, by means of a machine supported on the back, and which by means of a spring, a screw, or any other method, would tend to flatten, or rather press in the sternum, would have the disadvantage of all continued mechanical pressure: it would cause insupportable pain,

irritate the skin, inflame it, and produce abscesses, or at least scars."

This is a very narrow view of the influence of continued pressure. It would do much more than this: it would destroy the power of the voluntary muscles, and render probably the disease irremediable, by the destruction of one of the best means of cure. If physiology teaches not this, it teaches nothing.

"The pressure," he continues, "which I recommend, has none of these disadvantages. [But how does mechanical pressure differ from the temporary application of a machine?] It consists, after the child has been placed sideways, in placing the hand or knee against his back, or still better, his back against the wall, and placing the palm of the other hand upon the most projecting part of the sternum, and in pressing or pushing the anterior part of the chest towards the posterior part, by alternate movements, which, after some days' practice, accord so well with the movements of respiration, that the little patients, and those who

exercise the pressure, soon learn to exercise it during the time of expiration, and to suspend it, so as to allow the breast to develope itself, during the moment of inspiration. During these movements, a sound is heard similar to that made by the air in alternately entering and escaping from a bellows.

"I have often attentively observed the immediate effects of this exercise: these effects are a flattening of the projection of the sternum, a greater or less bending outwards of the ribs, the momentary return of the chest to a more natural shape, respiration much more strong and perfect than in general, [but what does he add?] and, when the pressure is removed, the *immediate return* of the parts to their ordinary state, accompanied with a strong inspiration.

"These pressures should be repeated ten times—a hundred times a-day if it were possible, and continued for several minutes each time: their efficacy will be in proportion to their frequency and duration."

The reader will observe, that I give this method

with great qualification. But I proceed to complete the statement of it.

The chief difficulty which the practitioner has to struggle with in the treatment of this deformity, is that of impressing on the minds of parents the absolute necessity of perseverance in the use of pressure, and of disposing them to continue with sufficient assiduity a process of which the results cannot for some time be visible. When we must trust to hired nurses, the difficulty, I fear, would be almost insuperable. Dupuytren accordingly says, "The practising of these pressures must not be indifferently consigned to any one. A mother's affection alone is capable of the perseverance requisite for success: with this ally, there is scarcely any malformation of the kind we have described that cannot be remedied; and I have seen children who were dreadfully afflicted, become eventually strong and well constituted."

In the second kind of deformity, local pressure may also be made, but in a different direction from that

in the former case. In the first kind of deformity, it must be made from before backwards; in this, from side to side. The child or patient must be placed with one side against the wall, and pressure be made either with the hand or the knee against the prominent part of the opposite side, from below upwards. By pressing the ribs upwards, we tilt the sternum forwards, and in some degree imitate the natural action of the parts. The pressure should be made during expiration, and suspended during inspiration, as in the former case. Parents are frequently astonished to see the degree of pressure which can be kept up without producing any inconvenience.

Dr. Copland suggests that "its benefits will be considerably promoted by applying a liniment, night and morning, along the spine, or even upon both the sternum and spine." But he adds, that "this latter deformity is very seldom met with so early in life as to admit of any expectation of advantage from the use of pressure."

With regard, however, even to that kind of deformity, to the cure of which this mode of treatment is most applicable, that of the ELEVATED STERNUM, *I think pressure expedient only where infancy renders guidance unintelligible, and voluntary exercise impossible.* Its less efficiency may be illustrated by a case related by the Baron himself.

The deformity, he says, "could not be immediately remedied; but it was necessary to preserve the child, and for this it was necessary to suckle it. This was effected by keeping the entrance of the nostrils clean and free, by removing from them the breast, and every thing that might impede the passage of the air; by offering the breast to the child, and removing it alternately, so as to leave time for respiration to take place, and especially by gradually substituting, for sucking, which obliges children to breathe only through the nostrils as long as they have the nipple in their mouths, the introduction of food by a spoon, which does not prevent, or but for a very short time

prevents, their breathing through the nose and mouth at the same time. By these attentions, the child reached three years of age."

As it is in this stage that Dupuytren proposes the removal of the tonsils when necessary, I may here quote his statement on that subject, without much suspending his narration of the case.

"I have said, that depression of the sides of the chest was often attended by swelling of the tonsils, and that I had been several times obliged to remove a portion of them in infants at the breast. Is it better, then, to attack this cause of the disease, or to wait for it? I have as frequently, perhaps more frequently than others, experienced the difficulty of this operation at a period of life when reason is unable to master the efforts of instinct, which revolts against every thing that causes pain, and strives to free itself even from that which is merely embarrassing. Nothing less, accordingly, than the imminent danger which menaces life, has determined me to act in these

cases. So serious is this danger, that I have seen children suffering under depression of the sides of the chest and swelling of the tonsils at the same time, fall, after violent but useless efforts to breathe, and after the most cruel suffering, into the most alarming state of convulsion, or into a state of suffocation, amounting to asphyxia, from which state they recovered only to fall again into the same danger at the end of a few minutes. We must therefore act, if we do not wish to see these wretched children die in the midst of the most frightful torments, owing to the necessity, joined to the impossibility, of breathing."

"An invention," he adds, "as simple as it is ingenious and useful, seems likely in future to render the extirpation of the tonsils more prompt and easy, less painful, and in particular much less dangerous. I mean the speculum invented by one of my pupils, Doctor J. Lemaitre. By means of this instrument, which is as valuable for the diagnosis of the diseases of the mouth, as for the operations they require, we

may keep the mouth open, the tongue down and immoveable, and may extirpate the tonsils with perfect safety."

To return to the case,—he says, "I then proposed repeated pressure of the chest from before backward, according to the method before described. The child, at that time between three and four years of age, had at first some difficulty in performing it, but soon became accustomed to it; and the relatives and friends of the child, encouraged by the good effects of the practice, engaged in it with such zeal that these pressures were repeated as often as a hundred times a day, and the child passed from the hands of one to another to be again subjected to the same pressure. This perseverance was attended with the best results. In less than six months, indeed, the projection of the sternum diminished; the back became straight; the lateral depression of the chest ceased almost entirely; the belly diminished in size; respiration was performed more slowly, easily and regularly; exercise was performed with much more ease; the size of the tonsils dimi-

nished, as well as the noise made by the air passing through the throat during the night."

Still the Baron acknowledges that this was insufficient.

"*Six or seven years passed in this way!* during which the child grew, and acquired strength remarkably. *Still the child was not perfectly formed, nor the spine perfectly straight, nor respiration perfectly free; the chest was round and cylindrical; the vertebral column projected a little; and respiration was disturbed after any fatiguing exercise.* I then recommended the exercise of moving a weight supended to a rope passed over two pulleys by means of the superior extremities. This *exercise* [*voluntary and active exercise, not passive pressure*] *was continued during two years* with the same exactness as pressure had been exercised on the sternum. Two or three hours were thus spent every day, and *the good effects of it were speedily manifested!* The muscles of the superior members acquired strength; those especially which are attached

to the chest, the great pectoral, the great dorsal, &c. &c. received a great development; the thorax, the sides of which were constantly raised by these muscles, received great increase in size; the spine, the muscles of which were equally exercised by the continual movements of flexion and extension of the body, —*the spine became perfectly straight, and acquired its natural curvature; respiration became full, deep, and of the ordinary slowness; in fine, this young female is now one of the tallest and best made of her sex,* and no one in seeing her would even imagine that during her infancy she had been labouring under malformation."

The most instructive passages in this relation, I have marked by italics, and I need not make further comment. It verifies my previous statement, that "pressure is expedient only where infancy renders guidance unintelligible, and voluntary exercise impossible." And "the good effects" of voluntary exercise so "speedily manifested," show that it should

have been much earlier commenced, and that thereby the cure might have been much earlier accomplished.

Under the partial impression of these truths, now vastly strengthened, I observed, when I first published my views on the subject, that "if the child be sufficiently old or strong, all those exercises should be used which have a tendency to expand the chest. The muscles, by the action of which we endeavour to effect this, are the two large serrated and pectoral muscles."

Dr. Copland has subsequently observed, that "in this deformity, the various exercises resorted to with the view of imparting strength and agility to the frame, will be useful, if judiciously directed:" and that "as soon as children affected by this depression of the walls of the chest can be brought to employ the muscles of the upper part of the body in a determinate

manner, this mode of treatment should also be employed."

Let us now examine the exercises prescribed by these authorities.

"The object and result of the exercises I recommend," says Dupuytren, "is to raise up the sides of the chest, to separate them, to make them turn outward, and finally to restore them to their natural conformation. There is no exercise better adapted for this purpose than that which obliges persons labouring under this malformation, to raise a weight suspended to a cord passed through two pulleys, by the aid of their arms and hands, during several hours daily. The end of the cord to be grasped should be fastened to the middle of a lever to be taken hold of by the two hands, the other extremity supporting a weight proportioned to the strength of the individual. The individual standing upright, or even rising on tiptoe, to reach the lever placed at the extremity of the cord, seizes it with both his hands; and employing the

power of the muscles of the fore-arm, arm, neck and chest, to bend the head, chest and body downwards at the same time, must raise the weight at the other extremity of the cord, and alternately employ the flexor muscles to raise the weight, and the extensors to straighten the body. If it be true—and there is no doubt of it—that there exist between the bones and muscles relations of conformation and action, so that the latter always tend to act upon the former, in such a manner as to bring them to their first and fixed shape; it is certain that the exercise we have just described, will, by directing the efforts of the muscles upon the bones of the chest, gradually bring the sides of this cavity to an improved form."

Perhaps the best mode of overcoming the depression by developing muscular action and power, similarly observes Dr. Copland, "is to cause the child to raise weights, by means of ropes and pullies placed at a considerable height over its head; so that, by taking hold of the rope with both hands raised above the

head, and pulling it downwards, the muscles may be brought into action, and the parietes of the chest thereby dilated."

Participating in these views, I observed in my former paper, that "the child should stand erect, and *carry the arms as far backwards as it can;*" and, to the latter injunction, I still attach much importance. With a vague impression, however, that the exercise prescribed by Dupuytren was not the best devised, since in it the weight of the body and the contraction of the abdominal muscles must depress the ribs, I observed, that "the use of the dumb-bells is a good exercise," and added, that "any exercise, indeed, is good, by which the scapulæ are approximated towards each other, and the arms carried backwards."

I am now satisfied that carrying the arms backward and approximating the scapulæ, without at the same time depressing the ribs by the weight of the body and the action of the abdominal muscles, is all

that is requisite. I object, however, to the employment of dumb-bells for that purpose, on account of the jerk which they produce, the involuntary action (that is, beyond a certain extent) which that implies, and even the danger which it produces; and I deem the Indian Exercises, first described in this country by Donald Walker, in his "Exercises for Ladies," as greatly preferable to all others, both in these and in every other deformity of the chest. They raise up the ribs and sternum, without the slightest counteracting tendency to depress them, and they give the fullest expansion to the chest.

By these various means, if properly persevered in, the chest returns to its natural shape, and the whole system becomes invigorated.

In the treatment of the DEPRESSED STERNUM, I strongly advise my patients to carry the arms back, at right angles to the body, or as far as they can; and to desist, as much as possible, from stooping. And here also I think the Indian Exercises the most

efficacious; for it is evident that whatever both raises and expands, or naturally rounds, the chest, at once elevates the depressed sternum, and depresses the elevated one. As the hollow sternum not unfrequently occurs in adults who stoop a good deal, I recommended an instrument to be worn for the purpose of constantly keeping the body erect; but I beg now to state my conviction of the injurious tendency of all instruments which impede the natural and voluntary action of muscles, as always tending to their destruction and to the increase of deformity.

I have tried the plan of throwing back the shoulders, in some milder cases, with success; and I think there are but few cases in which we need despair of doing good. The treatment, however, must be continued for a long time after the chest has been restored to its natural shape, else the deformity is likely to recur.

I entertain, however, a different opinion respecting the pigeon-breast in adults; and fear that in them we shall experience great difficulty in restoring the

breast to its natural shape. In this deformity, the osseous portion of the rib is the part to be acted upon; in the other, it is more the cartilaginous part.

I will now give a few cases, of these deformities.

Case I.—William Powell, æt. six years, of a weak and delicate constitution, applied at the General Dispensary, May 7th, 1828, for a complaint of his chest.

His mother states, that the child had a fine natural breast when born, but, when seven months old, she perceived the form of the chest begin to alter, and from that time to this it has been gradually attaining its present shape. The sternum appears, at first view, very prominent; but on a careful examination, the sternal extremities of the ribs project most, the sternum not being so much altered in direction. The sides of the chest are very much depressed, particularly the right side. There is slight lateral curvature of the spine. The child's breathing is not very quick or difficult when awake; but it breathes through

the mouth, and the nose appears as if it were stopped up. The tonsils are very much enlarged. During sleep, the breathing is very laborious, and the child is constantly making a dreadful noise. (Unwilling to trust to the assertions of the parents, I convinced myself of the fact by being present when he was asleep. The noise was very peculiar: the breathing appeared for a moment to be suspended, and then to be resumed with a rattling noise.) He frequently starts up in his sleep, and makes various exclamations. He has a cough, and is a little deaf. The mother gives the child a decoction of rue and savine, of sufficient strength to keep the bowels open, by which he appears to be benefited.

I advised the pressure, and the exercises which I have first described; they were partially tried, but the parents being inattentive, or too indolent to persevere with the treatment, the child continues at present (June 8th) nearly in the same state as when I first saw him.

Case II.—Master William N——, æt. five years,

of a weak and delicate habit, brought to me, May 5th, 1828, for tinea capitis.

Perceiving that the child breathed with difficulty, I inquired the reason, and desired to look at the chest. On examination, I found both sides of the chest very much depressed; the sternum prominent, particularly at its upper part; the lower portion slightly concave. The child was born with a broad chest, but after the first year it began to assume its present shape. The breathing is quick and short; the nostrils appear as if they were stopped up; and the child breathes through the mouth. During sleep, he struggles a good deal, rises up in the bed, and, after making a great noise, recovers himself. The noise is so loud and distressing to the mother as frequently to prevent her sleeping. The tonsils are enlarged, and the child has a frequent running at the nose.

I pointed out to the parents, who are intelligent persons, the cause of the difficulty of breathing, and the other symptoms; and I assured them that if

they would apply pressure to the chest, and induce the child to take certain kinds of exercise, which I enumerated, the chest would resume its natural shape, and the symptoms disappear. They immediately consented: the child was laid on the floor or table, and pressed by the mother for five minutes, or more, repeatedly during the day. The dumb-bells were employed a good deal; and exercise with the pulleys and rope was tried. The constitutional remedies which I have enumerated, were also employed. These means were steadily persevered in for several months. The state of the breathing soon mended, as well as the health of the child; and the chest began to resume its natural shape. The chest is now well formed.

Case III.—John William Rivers, æt. 16, thin and emaciated, applied at the General Dispensary, June 9th, 1828, for an affection of his chest.

He states that he has great difficulty in breathing, particularly on making any exertion, palpitation of

the heart, sensation of choking, and very unpleasant dreams. He starts up in his sleep, and makes a very curious noise, the respiration being, as in the former case, for a moment suspended, and then resumed with a rattling noise. The tonsils are enlarged; he is slightly deaf; and he has a cough. On examination, I found both sides of the chest very much depressed, and the sternum very prominent at its upper, but a little concave at its lower part. The pulsations of the heart were to be seen very strong against the side of the chest. There was a lateral curvature of the spine. The mother told me that her son was born with a flat chest; and was strong and healthy up to his fourteenth year, at which time he was apprenticed to a tailor. Soon afterwards, the complaint began to make its appearance.

It was so evident that great confinement had destroyed the boy's health, and produced this state of constitution, that I ordered him to quit the business, without which no mode of treatment would be avail-

ing. After reference of the case, by the master, to a magistrate, the boy was released from his apprenticeship. I then advised pressure, dumb-bells, and the other exercises, and gave quinine internally. My directions were attended to. In the space of a month, the shape of the chest began to improve; the breathing was easier; and at the end of four months, he was cured. He is now robust, and in good health; and the chest is as flat as natural. I have recently seen this person, and find his chest continues flat.

Case IV.—Charles Clitherow, æt. 4 years and a half, of a delicate constitution, was brought to me June 29th, 1829, with an affection of the chest.

The mother states that her child was born with a flat chest, and that its shape did not begin to alter until a year and a half ago, when it was taken with shortness of breathing, slight cough, and wasting of the body. The mother, at this time, perceived an alteration in the shape of the chest. All these symptoms had latterly increased. The child starts up in

his sleep, and makes various exclamations; and the nostrils are always as if they were stopped up. The tonsils are enlarged; and he grates his teeth in his sleep.

The same means were ordered in this case as in the preceding, and the shape of the chest was, after eighteen months, very much improved.

Case V.—Emma Hopkins, æt. 8 years, residing 2, Little Love Lane, Wood Street, applied to me Wednesday, June 29th, 1829, with a hollow sternum.

Her mother says that the child was born with a naturally formed chest, but that, about the age of two years, the shape began to alter, and at present the sternum, or rather the lower part of it, is very much depressed, and the sides of the chest very prominent. There is lateral curvature of the spine; and the knees are much turned in towards each other.

In this case, as the whole of the bony system was affected, I told the mother that I feared little permanent benefit could be effected, and merely ordered

gentle exercise and strengthening medicines: no good was done.

Elizabeth Morphew, æt. 8 years, residing at No. 10, York-street, Whitechapel, applied to me, in May this year, on account of a hollow sternum.

The mother says, that her daughter has had this depression of the chest from her infancy, that she was always very delicate; that latterly, however, she has had a good deal of cough and shortness of breath, and that she frequently complains of pains and weight across the chest, which compel her to bend forward for the purpose of relief. She is very thin and pallid, has bad appetite, and is slightly deaf. The lower half of the sternum is considerably depressed; the edges of the ribs are convex; and there is also slight lateral curvature of the spine.

I ordered her, Liquor. Calcis ℥iiiss; R. Humuli et R. Calumbæ ana ʒiv; Extract. Sarsæ ʒj: a dessert-spoonful of this mixture to be taken twice a-day, and an aperient powder occasionally. Above all, I strongly

impressed on the mother's mind the necessity of exercises, which have been adopted with great regularity.

By the use of the skipping-rope, and the Indian exercises, the form of the chest is already much improved. I have directed the child to lie down on a hard board whenever she feels fatigued.

There are two other children in the same family, who have a tendency to the same affection: a third died of a disease of the chest. The mother is of a delicate constitution, but the father is strong and healthy.

COMPRESSION BY STAYS.

THERE is another deformity of the chest well deserving the attention of medical men, produced by too tight lacing of the stays; in which the chest, instead of having the shape of a truncated cone, with its base inferiorly, becomes so utterly changed as to seem inverted, by having its apex inferiorly.

Soemmering has published an excellent work on the "Effects of Compression of the Waist by the Use of Corsets*;" and as no man perhaps ever possessed a more accurate knowledge of anatomy, and all that relates to it, as he has treated the subject in the most masterly way, and as it is very closely connected with the other subjects of this work, I shall here profit by what he has done upon it.

* Ueber die Wirkungen der Schnürbrüste.

Every one who has seen a skeleton knows that the chest consists of a cavity, protected by a curious frame-work of bones. These are, first the back-bone (consisting of vertebræ, or short bones jointed to one another), which sustains the whole upper part of the trunk; second, the breast-bone, about seven or eight inches long, and composed of three pieces; and thirdly, the ribs, of which there are generally twenty-four.

The twelve ribs on each side are all fixed to the backbone behind; and seven of these, the seven uppermost, are also attached to the breast-bone before, and are therefore called true ribs. The eighth rib has its end turned up and rests on the seventh; the ninth rests in the same way on the eighth; but the tenth, eleventh, and twelfth, are not connected with one another in front at all. The fore extremity of each rib consists not of bone, but of an elastic substance called cartilage. The elasticity of this substance, combined with the oblique position of the ribs, constitutes a beautiful provision, in consequence of which

the chest enlarges and contracts its volume to afford free play to the lungs.

Now, we see that the chest thus constituted, is of a conical form, the apex being uppermost; whilst the shape of the stays is quite the reverse, their narrowest part being below. Let any one compare the figures in Plate II., with those in Plate III. It will be evident that the smallest diameter of the stays encompasses the largest part of the chest, and that the largest diameter of the stays encompasses its smallest part. Further, all stays are hard and stiff below or at their apex; whilst the abdomen, on the contrary, where the point of the stays touches, is moveable.

The use of the stays, when they have the least effect on the chest, produces compression of the soft parts below, and throws up the viscera of the abdomen towards the chest.

Not only will the moveable false ribs be pushed upwards, and close together, and the space between them diminished; but they will be so pressed that

those of the right side will be brought nearer to the left, not only at their anterior extremities (the last perhaps excepted on account of its shortness), but also at their extremities towards the spine, (See Fig. 2, Plate III.) In consequence, the inclination of the false ribs generally must increase, and their cartilages be more bent; for the cartilaginous parts yield most readily, and the bony parts, on account of their elasticity, yield also a little.

If the compression be carried further, the lower true ribs will be carried upwards towards one another; the right will be carried towards the left, the sternum will ascend, and when the pressure is increased, the sternal extremities of the lower true ribs will necessarily be brought nearer to the spine, and the diameter of the chest, from before to behind, be diminished.

Whilst this is going on with the ribs, the bodies of the vertebræ are somewhat raised, their spinous processes gradually become more oblique, and pressed on one another, and at last the spine becomes bent.

Superiorly, the thorax naturally becomes smaller. The fifth and sixth ribs do not further suffer from the immediate pressure of the stays, but commonly form more or less of a circle round the chest. In the remaining upper ribs, the contrary, to a certain degree, is the case: the ribs are pressed from one another by the internal viscera; their interspaces are greater; the right is somewhat separated from the left; and their sternal stand off from their spinal extremities.

To the act of breathing, the first, second, third, and at the utmost the fourth ribs, contribute: it even appears as if they were more moveable.

To this space are the breasts, with the surrounding parts, pushed upwards (Fig. 2, Plate II.); and such persons appear to have larger breasts, but some part of these organs usually suffers from the pressure.

The shoulder blades are sometimes brought closer to one another behind; and their under part is pressed towards the spine; the back loses its fine rounding; and the arm is impeded in its free motion. Hence,

when a tight-laced person, while sitting, reaches over, she must move the whole upper part of the body on the hips.

The clavicles are very much pressed back at their outer extremities, so that their anterior extremities project very much below the wind-pipe, and have the appearance as if they would soon be dislocated.

By this forcible compression of the whole chest, the vertebræ are kept somewhat from one another, and straighter; the stays rest on the hips; and the ribs rest on the stays. Hence, it is explained, without any difficulty, how laced persons appear taller and longer.

It is not possible to avoid, in tight lacing, pushing the ribs more to one side than another, nor the spine being curved, and the patient having the high shoulder. (Vid. Fig. 3, Plate III.)

If all these changes take place externally, what changes do the internal organs suffer!—The under part of the lungs is compressed; the entrance of the

blood is impeded; the diaphragm is forcibly pushed upwards, and embarrassed in all its functions. The viscera of the abdomen especially suffer, as they are chiefly encompassed only by soft parts; the stomach is pressed, and prevented from distending; it changes its situation and form, and bad digestion ensues; the duodenum is unnaturally pushed upwards; the liver has its shape altered, and its functions obstructed; the rectum, uterus, and bladder are pushed downwards.

All this must be increased to a great degree when high shoes are worn, because thereby the abdomen is more stretched, and the viscera more pressed.

Soemmerring's figures, which I have given, illustrate these conditions. I took, he says, "for my first figure, the representation of the Grecian Venus, as it is given by Audran;" and he adds that "the left side in the plate is the right in the original, and the right in the plate is the left in the original; and that he has now and then marked the outline a little firmer than in the copy." Audran's errors in the Venus are here

corrected. In reference to Figure 2, Plate II., Soemmerring says, "whoever has an opportunity of seeing any one naked, who has been tight laced, will see that my representation is far from being overstretched."

In order further to illustrate this, Soemmerring gives two measurements.—In a fine girl, the circumference of the head is twenty-two Paris inches. The circumference of the body in the same person, with the stays on, is twenty-one Paris inches, four lines and a half. In another girl, the circumference of the head is eighteen inches. The circumference of the laced body is 15 inches. The circumference of the body under the arms is thirty inches, nine lines. Thus the body is full three inches less in circumference than the head.

"From 1760 to about 1770," says Soemmerring, "it was the fashion in Berlin, and other parts of Germany, and also in Holland a few years ago, to apply corsets to children. This practice fell into disuse, in consequence of its being observed, that children who

flatulence, diarrhœa, colic pains, induration of the liver, dropsy and rupture.—It is also followed by melancholy, hysteria, and many diseases peculiar to the female constitution, which it is not necessary to enumerate in detail *."

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* DISEASES ASCRIBED TO THE USE OF CORSETS.

The number of diseases which are produced by stays, according to the testimony of medical men, is astonishing. They cause—

IN THE HEAD,

Pain in the head, according to	*Bonnaud.*
Giddiness	*Müller.*
Sleepiness	*Bonnaud.*
Apoplexy	*Müller.*
Tendency to fainting	*Gruner.*
Pains in the eyes	*Müller.*
Earach	*Müller.*
Bleeding at the nose	*Bonnaud.*
Stoppage in the nose	*Müller.*
Flow to the mouth and lips	*Bonnaud.*
Obliquity of vision	*Camper.*
Swellings in the neck	*Winslow.*
Carotidean aneurisms	*Morgagni.*

Another effect of tight corsets, he observes, "is that those who have been long so closely laced,

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IN THE CHEST.

Displacement of the bones of the chest from their situation	*Platner.*
Depression of the lower bone of the sternum . .	*Müller.*
A false support given to the thorax, and the development of the real support impeded	*Brinckman.*
Hunchback	*Winslow.*
Inability to suckle in consequence of pressure on the breasts	*Ballexserd.*
Scirrhus in the mammary glands, and ultimately cancer, according to	*Oelsner,*
and all others, without any exception, who have written on the injurious effects of lacing.	
Pain in the region of the heart	*Winslow.*
Sores on the chest	*Bonnaud.*
Impediment to the action of the lungs . . .	*Platner.*
Adhesion of the lungs to the diaphragm . . .	*Kositzki.*
Asthma	*Gaubius.*
Short breath (dyspnœa)	*Josephi,*
Hooping cough	*Bonnaud.*
Cough	*Ballexserd.*
Spitting of blood	*Huxham.*
Abscesses in the lungs	*Bonnaud.*
Cavities in the lungs	*Reinhard.*
Consumption	*Swieten.*
Impediments in the action of the heart . . .	*Platner.*

become at last unable to hold themselves erect, or move with comfort without them; but, as is very

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Disturbance of the circulation, and hence inflammation, &c.	*Gaubius.*
Polypus	*Bonnaud.*
Water in the chest	*Bonnaud.*

IN THE ABDOMEN.

Disturbance of the functions of the diaphragm	*Wormes.*
Pressure on the stomach	*Ballexserd.*
Hence pains in the stomach	*Wormes.*
Loss of appetite	*Müller.*
Sickness	*Schnizlein.*
Acidity	*Bonnaud.*
Vomiting	*Winslow.*
Vomiting of blood	*Wormes.*
Bad digestion	*Winslow.*
Scirrhus of the stomach	*Bacher.*
Flatulency	*Müller.*
Diarrhœa	*Bonnaud.*
Adhesion of the intestines	*Rougemont.*
Induration of the mesenteric glands	*Winslow.*
Colic pains	*Bonnaud.*
Tenesmus	*Bonnaud.*
Hæmorrhoids	*Bonnaud.*
Fistula in ano	*Bonnaud.*
Dysentery	*Bonnaud.*
Hypochondriasis	*Rougemont.*

justly said, fall together, in consequence of the natural form and position of the ribs being altered. The

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Compression and obstruction of the liver	*Mascagni.*
Jaundice	*Winslow.*
Inflammation of the liver	*Wormes.*
Hardening and suppuration of the pancreas	*Bonnaud.*
Diseases of the spleen, inflammation, suppuration, and scirrhus	*Ballexserd.*
Diseases of the kidney	*Camper.*
Calculi	*Wormes.*
Strangury	*Bonnaud.*
Hernia of the bladder	*Bonnaud.*
Bloody urine	*Gaubius.*

Hysteria	*Bonnaud.*
Disturbance of the catamenia	*Platner.*
Leucorrhœa	*Müller.*
Hardening of the ovaries	*Targioni.*
Inclination of the mouth of the uterus towards the sacrum	*Mohrenheim.*
Scirrhus of the womb	*Wormes.*
Hæmorrhage from the uterus on the separation of the placenta	*Bonnaud.*
Sterility	*Josephi.*
Unhealthy children	*Platner.*
Ugly children	*Josephi.*

muscles of the back are weakened and crippled, and cannot maintain themselves in their natural position

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Monstrosities	*Diebold.*
Miscarriages	*Camper.*
Premature labour	*Müller.*
Difficult labour	*Unzer.*
Protracted labour	*Hannes.*
Adhesion of all the viscera of the abdomen to one another	*Aepli.*
Disfiguration of the viscera	*Müller.*
Dropsy of the belly	*Morgagni.*
Herniæ	*Richter.*
Swelling of the upper extremities	*Bonnaud.*
Swollen feet	*Wormes.*

GENERAL DISEASES.

Pains	*Gaubius.*
Want of energy	*Ballexserd.*
Melancholy	*Ludwig.*
Flying heats	*Bonnaud.*
Intermitting fever	*Reinhard.*
Eruptions	*Reinhard.*
Chlorosis	*Winslow.*
Atrophy	*Bacher.*
Epilepsy	*Müller.*
Tendency to disease of the bones	*Wegelin.*
Sickly and short life	*Camper.*

for any length of time. The spine, too, no longer accustomed to bear the destined weight of the body, bends and sinks down. Where tight lacing is practised, young women from fifteen to twenty years of age are found so dependent upon their corsets, that they faint whenever they lay them aside, and therefore are obliged to have themselves laced before going to sleep. For as soon as the thorax and abdomen are relaxed, by being deprived of their usual support, the blood rushing downwards, in consequence of the diminished resistance to its motion, empties the vessels of the head, and thus occasions fainting"

EFFECTS OF CORSETS ON PREGNANT WOMEN.

STAYS are regarded by many as the cause of sterility, partly because they interfere with the functions of the viscera contained within the chest and

abdomen, and partly because they impede the development of the uterus.

If the stays are fastened on the hips [as modern stays almost universally are], no proof is required to show that, by narrowing the diameter of the pelvis, the development and birth of the child will be rendered difficult.

Even if a pregnant person leaves off the use of the stays early, she carries her child with more difficulty than if she had not worn them at all.

Most pregnant women, indeed, are compelled to give up the use of stays, because the expanding womb gradually fills the pelvis and abdomen, contracts the chest, and pushes, to the great discomfort of the individual, the viscera upwards. Most persons in this condition, therefore, omit the use of stays with the greater cheerfulness, as they generally find all their unpleasant symptoms disappear on leaving the stays off.

But if the feelings of the person be not attended

to, either because she does not know how to relieve them, or because she would rather endure them for the sake of a fine form, then these bad symptoms gradually increase; and if the compression by the stays be increased as the uterus enlarges, miscarriage frequently follows, and the life of the mother is endangered. All observers who have written on the ill effects of stays from their own experience have borne testimony to the correctness of this remark.

If things even proceed more favourably, so that the infant increases with the uterus, and attains its full size, still the upper part of the chest in the mother is so changed, that, after the first or second child, the high shoulder invariably occurs.

When this is the case, the mother suffers considerably from headach, giddiness, difficult breathing or narrow-chestedness, nausea, vomiting, pains in the bowels, faintings, varicose veins, swollen bones, difficulty in making water, tenesmus, prolapsus of the

rectum, constipation, coughs as well as herniæ, and a variety of nervous sensations.

All this is easily explained by laws of the animal economy familar to us all.

Headach and giddiness the mother must endure, because the stays and womb press at the same time on the thorax and abdomen, and produce determination of blood to the head.

Breathing the mother finds difficult, because not only the stays, but the womb, narrow the chest, and impede the expansion of the lungs.

Nausea and sickness the mother complains of, because, by the pressure of the stays and the womb, the stomach is now pressed, and seeks to empty itself.

Pains in the bowels occur, because sometimes a portion of the intestines is pressed by the stays and womb, and becomes painful; or because the fæces cannot pass, flatus developes itself, and the intestine is distended in some part to a painful extent.

Faintings the mother is subject to, because the blood circulating with sufficient freedom through the descending aorta cannot, on account of pressure of the womb and the stays, properly return by the veins; hence the vessels of the brain contain too little blood.

Owing to the same causes, swellings of the veins of the feet occur in many cases where they would never have happened if lacing had not been practised.

Pressure on the absorbents of the feet causes the fluids to circulate in them slowly; and the feet in consequence swell.

A frequent desire to make water occurs, because the bladder cannot properly distend itself, owing to resistance from the uterus and the stays, and the little water it contains is soon expelled by the pressure which is thus kept up.

Desire to go to stool occasions pains to the mother from the same cause.

Hence also the intestine in hernia is protruded, or the rectum prolapsed.

Hence likewise deafness, and insensibility and paralysis of the feet occur, from pressure on the nerves which supply the lower extremity.

The many remaining nervous sensations I will omit mentioning, as this subject is yet by far too obscure.

Not unfrequently have I seen, in laced pregnant women, many of these symptoms disappear or subside, especially in sickness, fainting, giddiness and the difficulty of breathing, as soon as the band round the waist, or the stays, were loosened.

Nevertheless, I concur with Levret, that when women have been long accustomed to stays, they cannot even in pregnancy omit them, but must moderately use them, and only gradually abandon the custom, as the too sudden relinquishing of them might produce mischief.

It is certainly astonishing that the female sex,

which during pregnancy stand so much in need of expansion of the chest in order to contain the pushed up viscera, and which are exposed to all the above mentioned ailments, seek before pregnancy to contract these parts so forcibly by every possible contrivance of art.

It is even more astonishing that mothers who have not only experienced this widening of the chest, but who also know that, after many children, what is called a fine figure disappears for ever, that lacing leaves behind a high shoulder, and that they find themselves well during pregnancy, when they disregard all consideration about figure,—that even these mothers, I say, quietly permit their own daughters to follow the fashion, or recommend a fashion which their own experience must have taught them to be injurious in one of the most trying periods of their life.

I am aware that Pecklin, B. Scarf, and Winslow were of the same opinion, that the use of stays crip-

ples or kills children; that Ludwig has seen impressions of the stays on the foreheads of children; and that Siebold described a very large hernia cerebri, as possibly owing to a defective formation caused by the use of stays by the mother.

EFFECTS OF STAYS ON PARTURITION IN PARTICULAR.

FROM what has been said, it is clear that, as the bones of the pelvis cannot be deformed by the use of the stays, except when they rest on the hips, therefore, as far as the uterus and child are concerned, parturition is not made more difficult. [Unfortunately modern stays always cover the hips.] A well-formed, healthy uterus, a strong made child, perform their natural part; a well-shaped pelvis offers no resistance; but in relation to the mother, we daily see that if, during pregnancy, attempts are made, by

lacing, to fashion a fine figure, just in the same proportion, the birth, especially if it be a boy, is difficult.

The bones of the thorax, the diaphragm, the muscles of the abdomen, which are called into action in parturition, have suffered very much, and the whole body is weakened by eight or nine months' continued indisposition: they cannot, consequently, have the proper strength at the time of parturition, nor be so quickly restored afterwards.

EFFECTS OF STAYS ON THE BREASTS, AND THE SUCKLING OF THE CHILD IN PARTICULAR.

The mammary glands which secrete the milk, rest on the hard ribs, and consequently, when they are compressed by the stays, they are between two hard bodies, and must, as the hard bodies are stronger, give way.

The nipples by the slightest pressure are depressed, and retract; they do not come sufficiently forward when the child is put to the breast; and they thereby cause the mother great pain. In fact, the mother is sometimes obliged to desist from suckling the infant to the injury of both.

If the pressure of the stays on the mammary glands be sufficiently strong, the vessels contract in one part of the glands, and cause a difficulty in the secretion of the milk in this spot. Then occur swellings, inflammations, abscesses, which completely prevent the child from suckling.

If the pressure be kept up so strongly that the vessels completely close, mammary tumors form, which may ultimately become scirrhous, and can be cured only by means of the knife.

LATERAL CURVATURE OF THE SPINE.

I MENTION this merely as illustrated by the 3rd Figure of Plate III., as well as by Plate IV., and as completing the list of the worst deformities of the chest.

Riolan says, and after him Guillemeau, that, in nearly all the French girls of that time, the right shoulder was the highest, because the right side is usually the strongest.

The Dutch physicians have also observed that, in their country, on account of the use of stays, not one in a thousand ladies in high life was quite straight; and it is well known that nowhere are stays worn so tight as in Holland.

The lamentable effects upon the spine produced by the use of stays in our own days, are well known. But I reserve that for the subject of a work on Lateral Curvature.

BRADBURY AND EVANS, PRINTERS, WHITEFRIARS.

PLATE I.

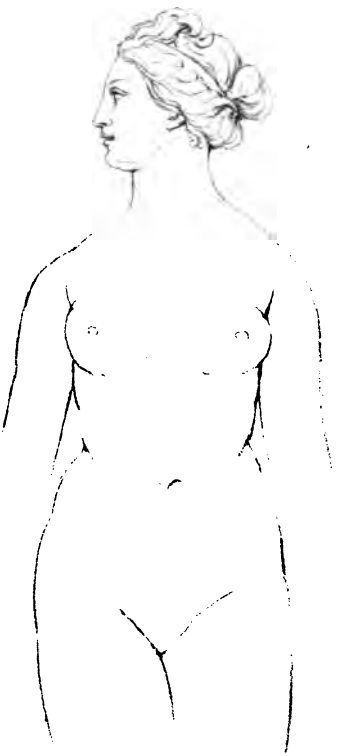
Fig. 1.

PROMINENT STERNUM.

Fig 2

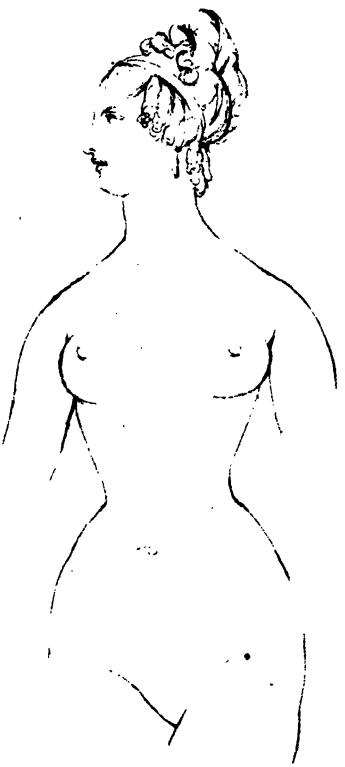
DEPRESSED STERNUM.

Fig. 1



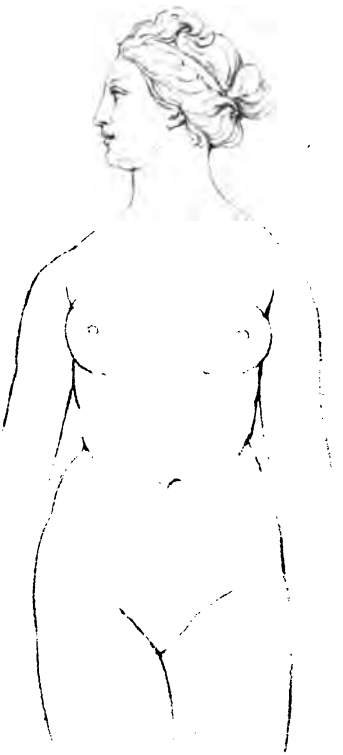
THE NATURAL WAIST.

Fig 2.



THE ARTIFICIAL WAIST.

Fig. 1



THE NATURAL WAIST.

Fig 2.

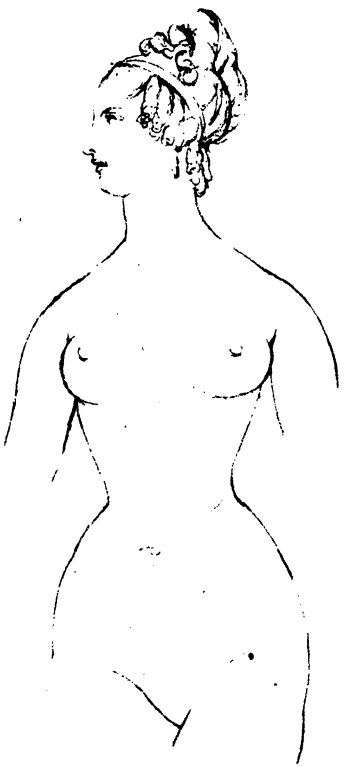


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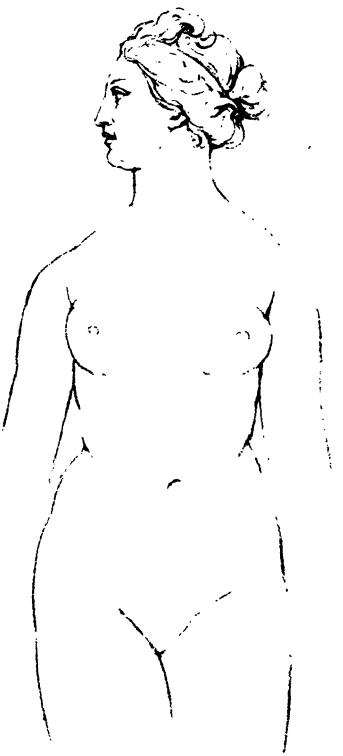
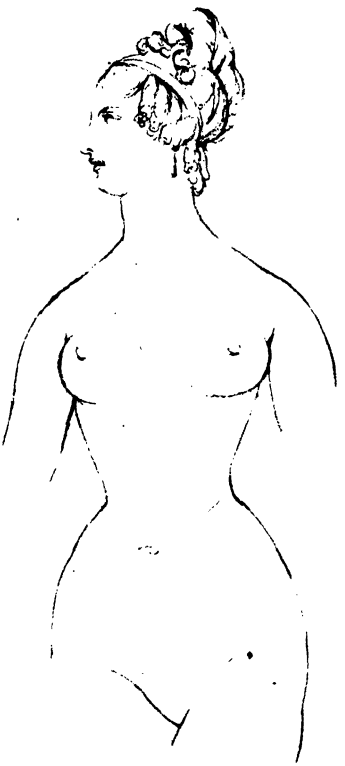
Fig. 1



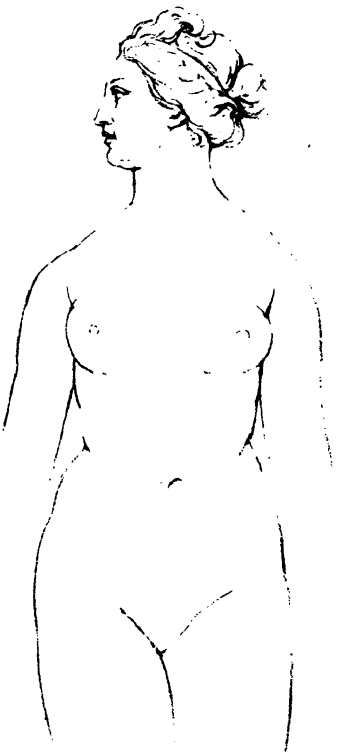
THE NATURAL WAIST.

Fig 2.



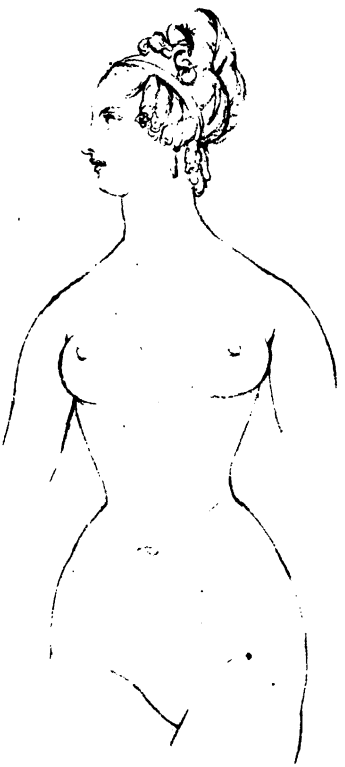
THE ARTIFICIAL WAIST.

Fig. 1



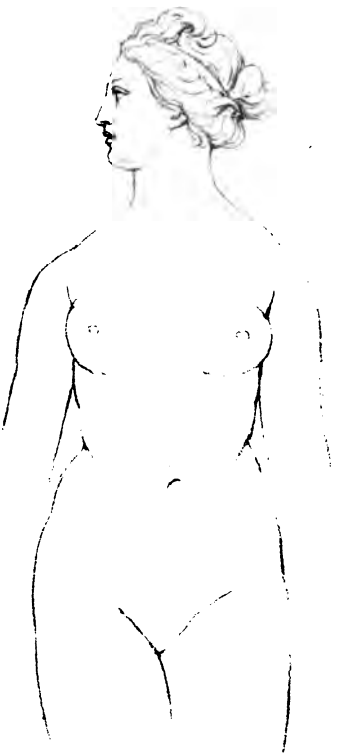
THE NATURAL WAIST.

Fig 2.



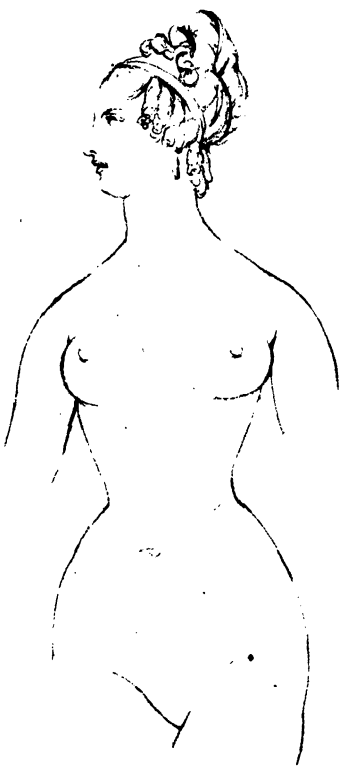
THE ARTIFICIAL WAIST.

Fig. 1



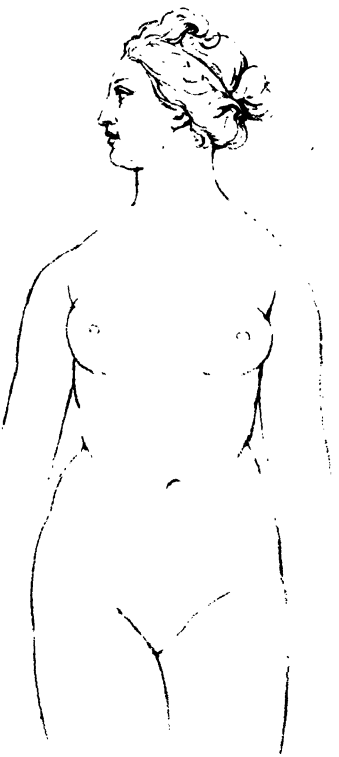
THE NATURAL WAIST.

Fig 2.



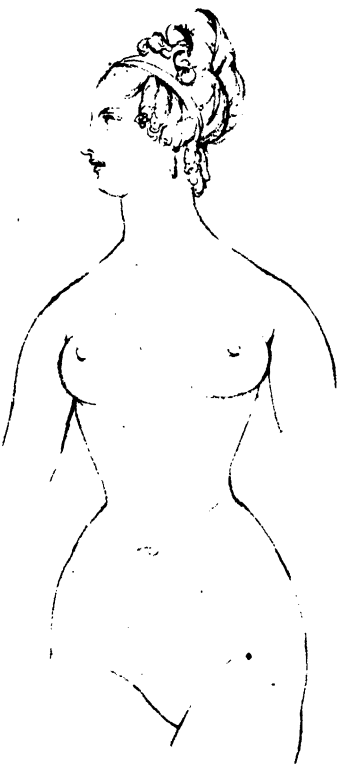
THE ARTIFICIAL WAIST.

Fig. 1



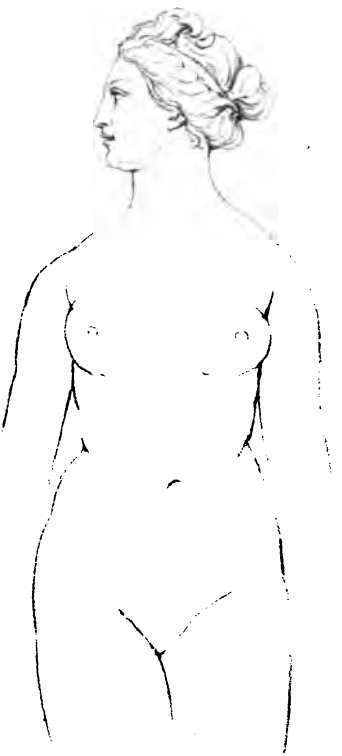
THE NATURAL WAIST.

Fig 2.



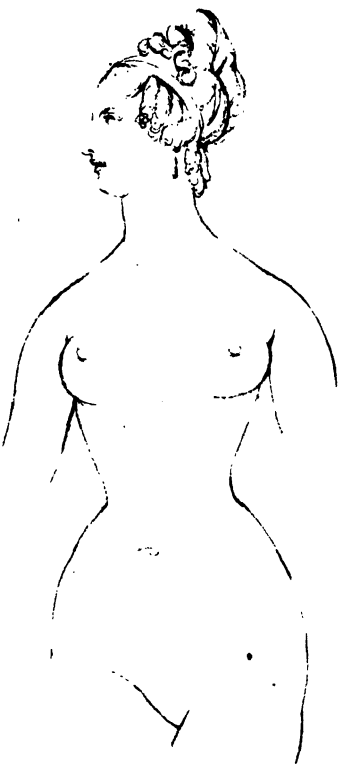
THE ARTIFICIAL WAIST.

Fig. 1



THE NATURAL WAIST.

Fig 2.



THE ARTIFICIAL WAIST.

Fig 1

Fig 2.

EFFECT OF STAYS.
Front View

E III.

URAL SKELETON

Fig. 3.

EFFECT OF STAYS.
Back View.

Fig 1

Fig 2.

EFFECT OF STAYS.
Front View

E III.

URAL SKELETON

Fig. 3.

EFFECT OF STAYS.
Back View.

PLATE IV.

CURVATURE OF THE SPINE.

PLATE IV.

CURVATURE OF THE SPINE.

PLATE IV.

CURVATURE OF THE SPINE.

PLATE IV.

CURVATURE OF THE SPINE.

PLATE IV.

CURVATURE OF THE SPINE.

PLATE IV.

CURVATURE OF THE SPINE.

PLATE IV.

CURVATURE OF THE SPINE.

PLATE IV.

CURVATURE OF THE SPINE

5.8

5X

58

5.X

5.X

5X

58